11. SELECTED REMEDY

Based on consideration of the requirements of CERCLA, the detailed analysis of alternatives, and public comments, the Agencies have selected the following alternatives for the OU 3-13 release site groups described in this ROD.

11.1 Descriptions of the Selected Remedies

The Agencies have selected a remedy for each release site group based on the alternative analyses presented in the FS (DOE-ID 1997a) and FS supplement (DOE-ID 1998a). For two of the groups, the Tank Farm Soils release sites (Group 1), and the Snake River Plain Aquifer (Group 5), the remedy selected is an interim action. Insufficient data currently exist to fully determine the impact of the Tank Farm contaminated soils to the SRPA and to determine the most cost effective remedial action alternatives. Although the action selected for the SRPA is complete for groundwater outside the current INTEC security fence, further investigation is required to evaluate the appropriate remedial alternatives for contaminated SRPA groundwater directly beneath the INTEC facility. Therefore, the Group 5 Remedial Action is considered interim.

Each of the selected remedies relies, in part, on Institutional Controls. Table 11-1, lists the type of controls that will be implemented for each Group and release site where contamination remains at levels that result in use or access restrictions to prevent an imminent and substantial endangerment to public health or the environment. In general, institutional controls will be designed to limit site access to an annual duration such that exposure to radionuclides and other Contaminants of Concern do not result in an imminent and substantial endangerment to public health or the environment. For each source area, calculations will be performed as part of Remedial Design to determine acceptable dose-based action levels that correspond to the risk-based concentrations identified in Section 8. This information will, at a minimum be noticed to all affected federal, state and local governmental agencies.

For those source areas representing a moderate exposure risk, controls in addition to administrative actions are required. Warning signs will be installed and maintained to warn intruders of the risks of remaining in an area longer than the posted duration. In those cases where only a brief exposure would result in an unacceptable risk and a high risk of exposure exists and active controls like fencing are required in addition to warning signs and administrative controls. The potential exposure threats would be to unauthorized trespassers if current DOE radiological site controls were no longer applied.

The evaluation of exposure duration necessary to represent an unacceptable risk is consistent with the approach used for the Baseline Risk Assessment. The identification of low, moderate and high potential exposure risk will be made in the Remedial Design, consistent with the current and future land use assumptions identified in the Baseline Risk Assessment and in this ROD. For example, if less than a day exposure would represent an unacceptable risk to a trespasser (high-risk potential) the requirement for fencing, warning signs, and administrative controls would be necessary. Conversely, the "No Further Action" Sites would require years of exposure to result in a potential unacceptable hazard and hence, only administrative controls are necessary to be protective.

The effectiveness of the Institutional Controls will be periodically evaluated during 5-year reviews and modified as necessary to meet RAOs. The INEEL Land Use Plan will serve as the tracking mechanism to identify, at a minimum, all CERCLA land areas at INEEL under restriction or control. This planning document may itself become a part of an INEEL Stewardship Plan or equivalent, but any modifications to the INEEL Land Use Plan will be consistent with the requirements of this ROD.

Table 11-1. Institutional controls for OU 3-13 ROD.

Group or Source Area	Time Frame	Land Restriction	COCs/and Exposure Threat	Objective	Controls	Regulatory Basis/Authority	Surveillance to Assure Controls in-place
1—Tank Farm Soils Interim Action	Current DOE operations until final action implemented	Industrial—radiologically controlled area.	Radionuclides and metals Moderate exposure threat	Prevent intrusion into underlying contaminated soils, except for, approved activities pursuant to the FFA/CO. Limit access to only authorized personnel and/or DOE certified radiation workers.	Visible access restrictions (warning signs, provide copies of surveyed maps). Control of activities (drilling or excavating). Publish surveyed boundaries and description of controls in INEEL Land Use Plan.	FFA/CO, 10 CFR 835, "Radiological Worker Protection," DOE Order 5400.5, "Radiation Protection of the Public," ALARA 40 CFR Part 300.	Periodic inspections by DOE and IDHW/EPA reviews. Frequency to be determined in the remedial action work plan. *Note: The Interim Action is expected to last for less than 10 years and be replaced by the final action, OU 3-14.*
2a—Soils Under Buildings and Structures (cap-in-place)	Current DOE operations prior to D&D of building	Industrial—radiologically controlled area.	Radionuclides and metal Low exposure threat	Limit access to only authorized personnel and/or DOE certified radiation workers.	Visible access restrictions (warning signs, provide copies of surveyed maps). Control of activities (drilling or excavating). Publish surveyed boundaries and description of controls in INEEL Land Use Plan.	FFA/CO, 10 CFR 835, "Radiological Worker Protection," DOE Order 5400.5, "Radiation Protection of the Public," ALARA 40 CFR Part 300.	Require state/EPA notice prior to start of building D&D. Periodic inspections by DOE and IDHW/EPA reviews. Frequency to be determined in the remedial action work plan. *Note: Building demolition will be performed outside scope of ROD.*

Table 11-1. (continued).

Group or Source Area	Time Frame	Land Restriction	COCs/and Exposure Threat	Objective	Controls	Regulatory Basis/Authority	Surveillance to Assure Controls in-place
	Current DOE operations after building D&D-contamination left in place	Industrial landfill—no unauthorized intrusion into capped area. FFA/CO approved O&M activities authorized.	Radionuclides and metal Low exposure threat	Limit direct exposure to underlying radiologically contaminated soil areas by public to <1E-4 risk through shielding provided by building. Limit water recharge activities adjacent to Group 2 buildings. Maintain integrity of cap.	Visible access restrictions (warning signs, provide copies of surveyed maps). Control of activities (drilling or excavating). Publish surveyed boundaries and description of controls in INEEL Land Use Plan. Notice to affected stakeholders (e.g., BLM, F&W, ShoBan Tribal Council, local county governments; State and EPA), including notice of any change in land use designation, restriction, land users or activities.	FFA/CO, 10 CFR 835, "Worker Protection," DOE Order 5400.5, "Radiation Protection of the Public," ALARA 40 CFR Part 300 CERCLA 120(h).	Periodic inspections and reviews. Frequency to be determined in the Remedial Action Work Plan.
	DOE control post operations	Landfill—no unauthorized intrusion into capped area. FFA/CO approved O&M activities authorized.		Maintain integrity of cap.	Visible access restrictions (warning signs). Control of activities (drilling or excavating) Notice to affected stakeholders (e.g., BLM, F&W, ShoBan Tribal Council, local county governments; State and EPA), including notice of any change in land use designation, restriction, land users or activities. Property lease requirements including requirements for control of land-use consistent with the ROD.	FFA/CO, CERCLA Section 120(h)(5),[1] Hall Amendment Section 3154 of the National Defense Authorization Act,[2] DOE order 5400.5, "Property Release Restrictions."	5-year review until determined to not be needed.

Table 11-1. (continued).

Group or Source Area	Time Frame	Land Restriction	COCs/and Exposure Threat	Objective	Controls	Regulatory Basis/Authority	Surveillance to Assure Controls in-place
	Post DOE control	Landfill—no unauthorized intrusion into capped area. FFA/CO approved O&M activities authorized.		Maintain integrity of cap.	Notice to affected stakeholders (e.g., BLM, F&W, ShoBan Tribal Council, local county governments; State and EPA), including notice of any change in land use designation, restriction, land users or activities. Property transfer requirements including Finding of suitability to transfer and requirements for control of land-use consistent with the ROD.	FFA/CO, CERCLA Section 120(h)(3),[3] CERCLA Section 120(h)(3)(C)(ii),[4] CERCLA Section 120(h)(3)(A)(iii),[5] CERCLA Section 120(h)(1)-(3),[6] CERCLA Section 120(h)(4),[7] 43 CFR 2372.1,[8] 43 CFR 2374.2,[9] 41 CFR 101-47.202-1,-2,-7,[10] DOE order 5400.5 property release restrictions.	5-year review until determined to not be needed.
2b—Soils Under Buildings and Structures (remaining after removal to and disposal in ICDF)	Current DOE operations	Industrial.	Contaminants removed to 10 ft.	Ensure land-use is appropriate if contamination left in-place >10 ft.	Review and control of activities as applicable.	OU3-13 ROD, FFA/CO, 10 CFR 1021 NEPA Review of Activities.	5-year review until determined to not be needed including review of land use assumptions (OSWER Directive 9355.7-02A) (Supplemental Five-year Review Guidance).
	DOE control post operations	Industrial.	Contaminants removed to 10 ft.	Ensure land-use is appropriate if contamination left in-place >10 ft.	Property lease requirements including requirements for control of land-use consistent with the ROD.	OU3-13 ROD, FFA/CO, 10 CFR 1021 NEPA Review of Activities, CERCLA Section 120(h)(5),[1] Hall Amendment Section 3154 of the National Defense Authorization Act[2] DOE Order 5400.5, "Property Release Restrictions."	5-year review until determined to not be needed including review of land use assumptions.

Table 11-1. (continued).

Group or Source Area	Time Frame	Land Restriction	COCs/and Exposure Threat	Objective	Controls	Regulatory Basis/Authority	Surveillance to Assure Controls in-place
	Post DOE control	Industrial to 2095, residential after 2095.	Contaminants removed to 10 ft.	Ensure land-use is appropriate if contamination left in-place >10 ft.	Property transfer requirements including Finding of suitability to transfer and requirements for control of land-use consistent with the ROD.	OU 3-13 ROD, FFA/CO, CERCLA Section 120(h)(3),[3] CERCLA Section 120(h)(3)(C)(ii),[4] CERCLA Section 120(h)(3)(A)(iii),[5] CERCLA Section 120(h)(1)-(3),[6] CERCLA Section 120(h)(4),[7] 43 CFR 2372.1,[8] 43 CFR 2374.2,[9] 41 CFR 101-47.202-1,-2,-7,[10] DOE Order 5400.5, "Property Release Restrictions."	5-year review until determined to not be needed including review of land use assumptions.
3a—ICDF	Same as 2a						
3b—Other Soil Site (contamination remaining at depth >10ft after removal to and disposal in ICDF)	Same as 2b						
4—Perched Water	Current DOE operations	Industrial.		Prevent consumption and use of >MCL &/or >1E-04 risk drinking water.	Control of activities (drilling of wells for drinking).	DOE-ID directive limiting access to prevent groundwater use while INTEC operations continue, and to restrict future groundwater use (through noticing this restriction to local county governments, ShoBan Tribal council, GSA, BLM, etc.) including site access restrictions, and drilling restrictions.	5-year review until determined to not be needed.

Table 11-1. (continued).

Group or Source Area	Time Frame	Land Restriction	COCs/and Exposure Threat	Objective	Controls	Regulatory Basis/Authority	Surveillance to Assure Controls in-place
	DOE control post operations	Industrial.		Prevent consumption and use of >MCL &/or >1E-04 risk drinking water.	Control of activities (drilling of wells for drinking). Property lease requirements including finding of suitability to transfer and requirements for control of activities.	OU3-13 ROD, CERCLA Section 120(h)(5),[1] Hall Amendment Section 3154 of the National Defense Authorization Act.[2] DOE-ID directive limiting access to prevent groundwater use while INTEC operations continue, and to restrict future groundwater use (through noticing this restriction to local county governments, ShoBan Tribal council, GSA, BLM, etc.) including site access restrictions, and drilling restrictions.	5-year review until determined to not be needed.

Table 11-1. (continued).

Group or Source Area	Time Frame	Land Restriction	COCs/and Exposure Threat	Objective	Controls	Regulatory Basis/Authority	Surveillance to Assure Controls in-place
	Post DOE control (>2095)	Residential.		Prevent drilling through contaminated interbeds and dragging contamination downhole to the SRPA.	Property transfer requirements including finding of suitability to transfer and requirements for control of activities consistent with ROD.	FFA/CO, CERCLA Section 120(h)(3),[3] CERCLA Section 120(h)(3)(C)(ii),[4] CERCLA Section 120(h)(3)(A)(iii),[5] CERCLA Section 120(h)(1)-(3),[6] CERCLA Section 120(h)(4),[7] 43 CFR 2372.1,[8] 43 CFR 2374.2,[9] 41 CFR 101-47.202-1,-2,-7.[10] DOE-ID directive limiting access to prevent groundwater use while INTEC operations continue, and to restrict future groundwater use (through noticing this restriction to local county governments, ShoBan Tribal council, GSA, BLM, etc.) including site access restrictions, and drilling restrictions.	5-year review until determined to not be needed including review of land use assumptions
5—Snake River Plain Aquifer - outside INTEC 1999 fence line	Current DOE Operations	Industrial.		Prevent consumption and use of >MCL &/or >1E-04 risk drinking water.	Control of activities (drilling of wells for drinking).	FFA/CO	5-year review until determined to not be needed.

Table 11-1. (continued).

Group or Source Area	Time Frame	Land Restriction	COCs/and Exposure Threat	Objective	Controls	Regulatory Basis/Authority	Surveillance to Assure Controls in-place
	DOE control post operations -applies up to 2095	Industrial.		Prevent consumption and use of >MCL &/or >1E-04 risk drinking water.	Control of activities (drilling of wells for drinking). Property lease requirements including finding of suitability to transfer.	OU3-13 ROD, FFA/CO, CERCLA Section 120(h)(5),[1] Hall Amendment Section 3154 of the National Defense Authorization Act.[2] DOE-ID directive limiting access to prevent groundwater use while INTEC operations continue, and to restrict future groundwater use (through noticing this restriction to local county governments, ShoBan Tribal council, GSA, BLM, etc.) including site access restrictions, and drilling restrictions.	5-year review until determined to not be needed.

Table 11-1. (continued).

Group or Source Area	Time Frame	Land Restriction	COCs/and Exposure Threat	Objective	Controls	Regulatory Basis/Authority	Surveillance to Assure Controls in-place
	Post DOE control - applies up to 2095	Industrial (residential after 2095).		Prevent consumption and use of >MCL &/or >1E-04 risk drinking water (NA after 100 years).	Property transfer requirements including finding of suitability to transfer (NA after 100 years).	OU3-13 ROD, FFA/CO, CERCLA Section 120(h)(3),[5] CERCLA Section 120(h)(3)(C)(ii),[4] CERCLA Section 120(h)(3)(A)(iii),[5] CERCLA Section 120(h)(1)-(3),[6] CERCLA Section 120(h)(4),[7] 43 CFR 2372.1,[8] 43 CFR 2374.2,[9] 41 CFR 101-47.202-1,-2,-7.[10] DOE-ID directive limiting access to prevent groundwater use while INTEC operations continue, and to restrict future groundwater use (through noticing this restriction to local county governments, ShoBan Tribal council, GSA, BLM, etc.) including site access restrictions, and drilling restrictions.	5-year review until determined to not be needed.
6a—Buried Cylinders[11] (removal)	Current DOE operations	Industrial.		Prevent access to sites except by authorized workers.	Visible access restrictions (warning signs, provide copies of surveyed maps)	FFA/CO, 10 CFR 835 "Worker Protection"	Periodic inspection until remediation is complete.
	Post-remediation	Unrestricted.		NA- to be remediated.			

Table 11-1. (continued).

Group or Source Area	Time Frame	Land Restriction	COCs/and Exposure Threat	Objective	Controls	Regulatory Basis/Authority	Surveillance to Assure Controls in-place
	Current DOE operations after cap construction—contamination left in place	Industrial landfill—no unauthorized intrusion into capped area. FFA/CO approved O&M activities authorized.		Limit water recharge activities adjacent to Group 2 buildings. Maintain integrity of cap.	Visible access restrictions (warning signs, provide copies of surveyed maps). Control of activities (drilling or excavating). Publish surveyed boundaries and description of controls in INEEL Land Use Plan. Notice to affected stakeholders (e.g., BLM, F&W, ShoBan Tribal Council, local county governments; State and EPA), including notice of any change in land use designation, restriction, land users or activities.	FFA/CO, 10 CFR 835, "Worker Protection."	Periodic inspections and reviews. Frequency to be determined in the Remedial Action Work Plan.
	DOE control post operations	Landfill—no unauthorized intrusion into capped area. FFA/CO approved O&M activities authorized.		Maintain integrity of cap.	Visible access restrictions (warning signs). Control of activities (drilling or excavating) Notice to affected stakeholders (e.g., BLM, F&W, ShoBan Tribal Council, local county governments; State and EPA), including notice of any change in land use designation, restriction, land users or activities. Property lease requirements including requirements for control of land-use consistent with the ROD.	FFA/CO, CERCLA Section 120(h)(5),[1] Hall Amendment Section 3154 of the National Defense Authorization Act,[2] DOE order 5400.5, "Property Release Restrictions."	5-year review until determined to not be needed.

Table 11-1. (continued).

Group or Source Area	Time Frame	Land Restriction	COCs/and Exposure Threat	Objective	Controls	Regulatory Basis/Authority	Surveillance to Assure Controls in-place
	DOE control post operations	Landfill—no unauthorized intrusion into capped area. FFA/CO approved O&M activities authorized.		Maintain integrity of cap.	Visible access restrictions (warning signs). Control of activities (drilling or excavating) Notice to affected stakeholders (e.g., BLM, F&W, ShoBan Tribal Council, local county governments; State and EPA), including notice of any change in land use designation, restriction, land users or activities. Property lease requirements including requirements for control of land-use consistent with the ROD.	FFA/CO, CERCLA Section 120(h)(5),[1] Hall Amendment Section 3154 of the National Defense Authorization Act,[2] DOE order 5400.5, "Property Release Restrictions."	5-year review until determined to not be needed.
	Post DOE control	Landfill—no unauthorized intrusion into capped area. FFA/CO approved O&M activities authorized.		Maintain integrity of cap.	Notice to affected stakeholders (e.g., BLM, F&W, ShoBan Tribal Council, local county governments; State and EPA), including notice of any change in land use designation, restriction, land users or activities. Property transfer requirements including Finding of suitability to transfer and requirements for control of land-use consistent with the ROD.	FFA/CO, CERCLA Section 120(h)(3),[3] CERCLA Section 120(h)(3)(C)(ii),[4] CERCLA Section 120(h)(3)(A)(iii),[5] CERCLA Section 120(h)(1)-(3),[6] CERCLA Section 120(h)(4),[7] 43 CFR 2372.1,[8] 43 CFR 2374.2,[9] 41 CFR 101-47.202-1,-2,-7,[10] DOE order 5400.5 property release restrictions.	5-year review until determined to not be needed.
7—Hot Waste Tank System Prior to Excavation[11]	Current DOE operations	Industrial.		Same as 1.			

Table 11-1. (continued).

Group or Source Area	Time Frame	Land Restriction	COCs/and Exposure Threat	Objective	Controls	Regulatory Basis/Authority	Surveillance to Assure Controls in-place
"No Further Action" (NFA) Sites	DOE control post operations	Industrial radiological controlled.		Control land use as protective and consistent with NFA determination.	Property lease requirements including requirements for control of land-use consistent with the ROD.	FFA/CO, CERCLA Section 120(h)(5),[1] Hall Amendment Section 3154 of the National Defense Authorization Act,[2] DOE Order 5400.5, "Property Release Restrictions."	5 year review until determined to not be needed.
	Post DOE control	Industrial to 2095, residential following 2095.		Control land use as protective and consistent with NFA determination.	Property transfer requirements including Finding of suitability to transfer and requirements for control of land-use consistent with the ROD	FFA/CO CERCLA Section 120(h)(3),[3] CERCLA Section 120(h)(3)(C)(ii),[4] CERCLA Section 120(h)(3)(A)(iii),[5] CERCLA Section 120(h)(1)-(3),[6] CERCLA Section 120(h)(4),[7] 43 CFR 2372.1,[8] 43 CFR 2374.2,[9] 41 CFR 101-47.202-1,-2,-7,[10] DOE Order 5400.5, "Property Release Restrictions."	5 year review until determined to not be needed.

1. Notification to states of leases involving contamination.
2. Request concurrence of EPA on leases of NPL sites.
3. Statement in deed that remedial action is complete.
4. If remedial action is not complete, restrictions, response, guarantee, and schedule, budget assurances to be included in deed.
5. Clause allowing U.S. access to property to be included in deed.
6. Notice of information on hazardous substance to be included in deed.
7. Identify uncontaminated parcels of land.
8. Notice of intent to relinquish to DOI with contamination information and protection needs.
9. Transfer to DOI should indicate continuation of DOE responsibility.
10. Report on contamination information and allowed land-use.
11. Use is unrestricted after remediation activities, and institutional controls do not apply.

Periodic institutional control monitoring reports will be prepared as part of the RD/RA submissions, in compliance with the EPA Region 10 policy on the use of Institutional Controls at Federal Facilities. The first monitoring report will be submitted within 6 months of ROD signature. The monitoring reports will be submitted annually thereafter. A brief synopsis of the required institutional controls is also provided in the Group-specific selected remedy descriptions below.

Legacy waste that was generated as a result of previous sampling activities under WAG 3 RI/FS [i.e., investigation derived waste (IDW)] and removal actions will be disposed in the ICDF. Wastes from OU 3-13 RD/RA activities and IDW will be temporarily managed within the WAG 3 AOC under the substantive requirements of IDAPA 16.01.05.008 (40 CFR 264.553 Temporary Units and 40 CFR 264.554 Remediation Waste Staging Piles). By managing the wastes in the AOC, placement will not be triggered. The wastes will be managed in temporary units and remediation waste staging piles until the ICDF is available to receive then. Wastes treated in temporary units may be subject to LDRs. The final disposition of these wastes will be in the ICDF. The anticipated wastes include: soil cuttings, well purge water, personnel protective equipment, decontamination wastes, and bulk soils and debris.

This ROD also recognizes that contaminated soil sites addressed under this ROD may be disturbed through maintenance or upgrade activities associated with INTEC operations during the period before the CERCLA remedies are fully implemented. These contaminated soils will be considered CERCLA remediation waste, as the removal and subsequent storage or disposal of any contaminated soil represents progress toward cleanup.

For the purpose of selecting final surface soil remedial actions, the WAG 3 AOC (consisting of an area extending across all contaminated soils at WAG 3, as shown in Figure 1-10) will be considered a CERCLA AOC. The AOC allows for the flexibility in moving and staging noncontiguous soils while implementing selected remedial alternatives.

11.1.1 Tank Farm Soils Interim Action (Group 1)

A final remedial action selection decision concerning the Tank Farm Soils release sites has been postponed and will be developed following additional site characterization, risk analysis, and remedial alternative evaluation, which will be presented in a separate OU 3-14 RI/FS. An interim action is selected at the Tank Farm until a final decision is made by the Agencies. The remedy selected for the Tank Farm Soils Interim Action is Alternative 3—Institutional Controls with Surface Water Control. This alternative will assure that public exposure to the contaminated soils will be prohibited and will install engineering controls to reduce water infiltrating into the contaminated Tank Farm soils. Institutional controls include: warning signs; administrative controls to restrict access; inspection and maintenance for the duration of the interim action, projected to last 8 years or until a final risk management decision is made and implemented by the Agencies.

The interim remedy for controlling surface water infiltration includes: surface water run-on diversion channels sized to accommodate a 1 in 25 year, 24 hour storm event; grading and surface sealing the Tank Farm soils or covering the Tank Farm sufficient to divert 80% of the precipitation falling atop the Tank Farm soils area; and exterior building drainage improvements to direct water away from the contaminated areas so that moisture infiltration is minimized and contaminants are not mobilized. The diverted run-on water will be managed as part of the existing surface water drainage management system. Run-off water from the sealed Tank Farm soils will be collected and managed in a lined evaporation pond with leak detection. The evaporation pond will be constructed and used as a best management practice to reduce infiltration in the INTEC area. It will also contain the Tank Farm run-off in the event of an unplanned spill or release.

The goal of this action is to significantly reduce surface water infiltration into Tank Farm soils. Reducing surface water infiltration into these contaminated soils is expected to limit leaching and transport of soil contaminants to the perched water and reduce available water in the perched zone. INTEC-wide monitoring will be performed during the interim action period to evaluate potential changes in water content and quality in the perched water and SRPA, if they occur.

The selected remedy provides an interim solution that reduces the potential for further soil contaminant leaching and transport to the perched water, reduces the available water in the perched zone beneath the Tank Farm, and potentially minimizes further water quality impacts. The Agencies believe this interim action will be protective of human health and the environment while the OU 3-14 Tank Farm RI/FS is being performed. Further, this action will comply with ARARs, be cost effective, and be consistent with the final Tank Farm remedy and the Idaho High Level Waste and Facility Disposition Environmental Impact Statement (HLW & FD EIS) currently being conducted.

11.1.2 Soils Under Buildings and Structures (Group 2)

The selected remedy for the Soil Under Buildings and Structures is Alternative 2—Institutional Controls with Containment. Alternative 2 is a deferred action and consists of implementing institutional controls and soil excavation or capping. The institutional controls include: warning signs and administrative controls to restrict access to the contaminated soils. For those areas capped in place, additional institutional controls will be instituted to prevent future disturbance of the caps. This action assumes that the contaminated soils are currently contained in place due to the presence of the existing buildings and structures. The operation and subsequent demolition of these buildings and structures are outside the scope of this action. However, upon completion of D&D, an evaluation will be performed by the Agencies to determine if the soils, to a minimum depth of 10 ft bgs, contain contaminants exceeding the action levels specified in Table 8-1 of this ROD. If these action levels are exceeded, then the Agencies will either cap these soils in place in compliance with the substantive requirements of the hazardous waste landfill closure requirements or excavate and manage the soils as a Group 3 soil, as described below. If the buildings are demolished and closed in-place as a landfill under the D&D program, an assessment will be performed by the CERCLA program to evaluate the effectiveness of D&D containment to meet the Group 2 RAOs and remediation goals, specified in Section 8. The D&D containment structure would be augmented, as necessary, to meet these goals.

Prior to D&D, and in addition to the institutional controls described above, a process will be established as part of the Group 2 Remedial Design Work Plan, to review the effectiveness of the building(s) as aids in limiting infiltration through the underlying contaminated soils. This evaluation will consist of the following periodic steps being taken:

1. Review Operations maintenance of each building to be sure the buildings are kept in a protective configuration.

2. Examine roof drains/surface drainage system to determine if water is percolating into the contaminated soils or is being diverted somewhere else.

3. Monitor building or structure perimeter to determine if (based on drainage patterns) there is enough moisture to exceed the field capacity of the soils. Determine how much seepage into the soil poses a problem.

4. If there is a seepage problem, upgrade drainage patterns and perform surface modifications as necessary.

The final building or structure and release site configuration will be assessed under the Group 2 CERCLA program to determine if the building or structure will perform as an equivalent engineered barrier. Criteria for this evaluation will be developed during RD/RA.

Alternative 2 is selected because it best meets the balancing criteria of Implementability and short-term effectiveness, given that Alternative 3 is dependent upon the removal of the buildings and structures to be cost-effective. The Agencies believe the selected alternative is protective of human health and the environment, complies with ARARs, uses a permanent solution, and is cost effective.

11.1.3 Other Surface Soils (Group 3)

The selected remedy for Group 3, Other Surface Soils is Alternative 4A —Removal and On-Site Disposal. Alternative 4A consists of excavating contaminated surface soils and backfilling with sufficient clean soils to reduce the risk from external exposure to $< 1 \times 10^{-4}$. Sites will be backfilled and graded for erosion control. Depending on the extent of soil removal at individual release sites, institutional controls will be terminated at each site.

The excavated material will be disposed on-Site or off-Site. On-Site disposal will be an on-Site engineered landfill, the ICDF. The ICDF will be constructed under this alternative. Off-Site disposal will be in accordance with the Off-Site Rule (40 CFR 300.440). Prior to excavation, the life cycle cost effectiveness of on- or off-site disposal and compliance with DOE policy will be evaluated to determine where to dispose the excavated soils.

Based on currently available cost information, all Group 3 soils will be disposed in the ICDF. This approximately 80 acre area (including a buffer zone) will be engineered to be TSCA/RCRA-compliant for the purpose of final placement of WAG 3 CERCLA soils. The ICDF will also be designed to function as an INEEL-wide disposal facility to accommodate disposal of CERCLA soils and debris from other WAGs. A Staging, Storage, Sizing, and Treatment Facility (SSST) will also be constructed and operated to prepare CERCLA wastes (i.e., soils, debris, and aqueous wastes, such as purge and decontamination waters), as necessary, for disposal in the ICDF. It is anticipated that this facility will consist of a storage/staging building, an evaporation pond or equivalent surface impoundment, a waste shredder, solidification/stabilization treatment tanks, and associated systems. The evaporation pond will be designated as a Corrective Action Management Unit (CAMU). The evaporation pond will be designed and constructed to treat ICDF leachate and other aqueous wastes generated during operations. .

The ICDF will be a modular design, containing up to six cells, with a total capacity of 466,000 m^3 (510,000 yd^3). Cells will be constructed as needed. Contaminated soils will be permanently contained in this engineered facility designed for long-term protection of human health and the environment. Institutional controls will be maintained at the ICDF as long as necessary to ensure long-term protection.

The ICDF will reduce the overall areal extent of soil contamination at INTEC and the INEEL, and will achieve cost savings relative to off-INEEL disposal, or on-site management, because the soils will be managed in a central facility. Selection of this alternative implements design and construction of the initial cells of the ICDF sufficient to contain the Group 3 soils.

- Figure 11-1 provides a schematic cross-section of the ICDF facility. A conceptual cross section of an engineered barrier, with an expected 1,000-year design life (i.e., Hanford Barrier), that may be used to cap the ICDF at closure is presented in Figure 11-2. ICDF design, construction, operation, and closure objectives include: Construct the ICDF complex which will include an engineered facility meeting Idaho Hazardous Waste Management Act (HWMA), RCRA Subtitle C, and polychlorinated biphenyl (PCB) landfill design and

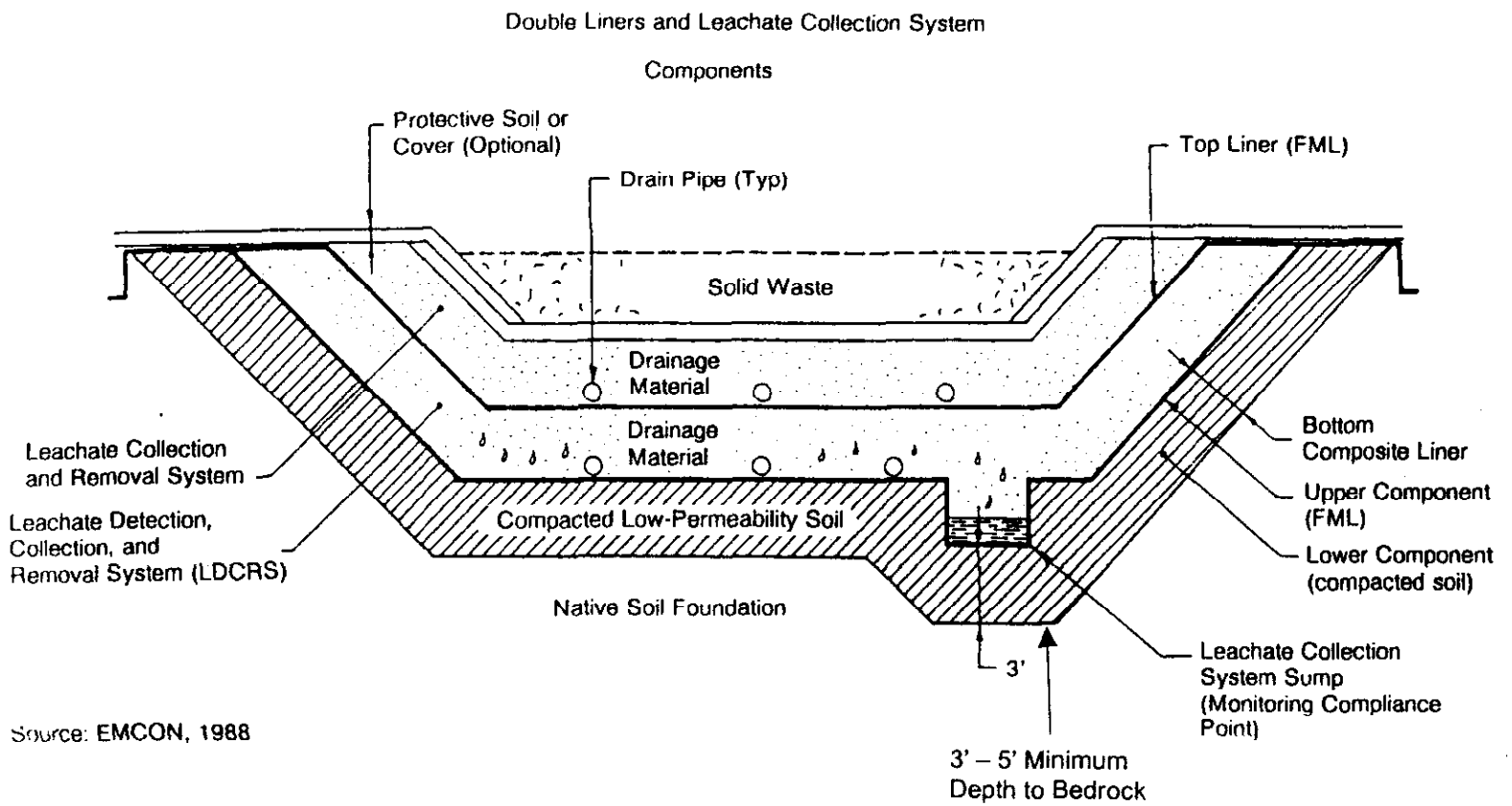

Figure 11-1. Schematic cross-section of the ICDF facility.

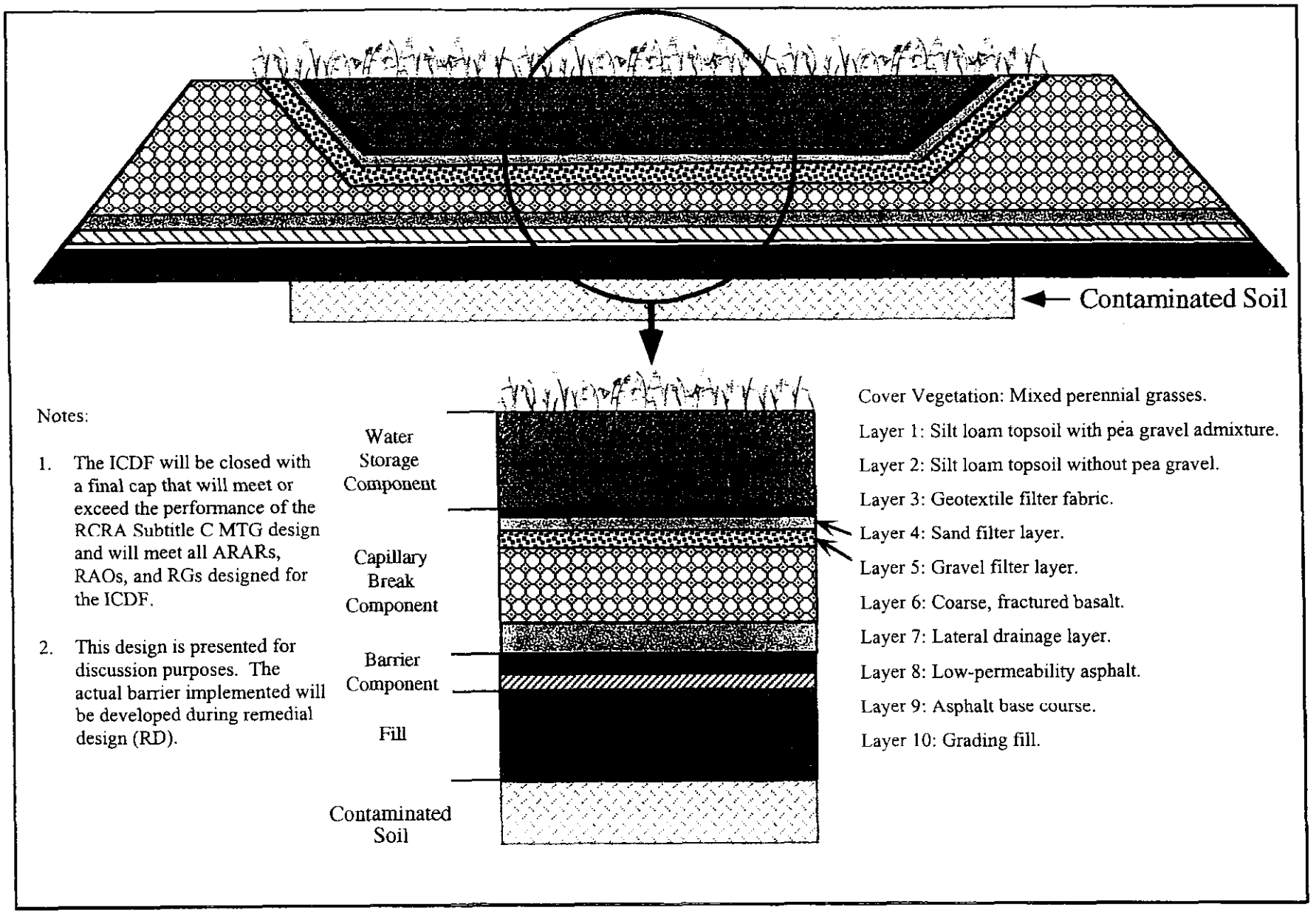

Figure 11-2. Conceptual cross-section of the ICDF cap (typical Hanford Barrier).

construction requirements. The ICDF will be located within the WAG 3 area of contamination (AOC). Design, construction, operational, and closure requirements for the ICDF include:

- Designed to have a total capacity of approximately 466,000 m^3 (510,000 yd^3)
- Engineered to meet IDAPA 16.01.05.008 (40 CFR §264.301) hazardous waste, 40 CFR §761.75 PCB, and DOE Order 435.1 radioactive waste landfill design and operating substantive requirements
- Double leachate collection/detection liner system
- Minimum of 3 feet of compacted clay soils and flexible membrane liner (FML) will serve as the bottom liner
- The cap will be designed to minimize infiltration and run-on and maximize run-off
- Cover designed to protect against inadvertent intrusion for >1,000 years
- Void spaces will be filled to minimize future subsidence.

- Only INEEL on-Site CERCLA wastes meeting the agency-approved ICDF Waste Acceptance Criteria (WAC), to be developed during the remedial design, will be disposed in the ICDF. Wastes will be limited to low level radioactive, PCB solids, hazardous, and mixed low level waste. An important objective of the WAC will be to assure that hazardous substances disposed in the ICDF will not result in exceeding groundwater quality standards in the underlying groundwater aquifer, even if the ICDF leachate collection system were to fail after closure.

- Located in an area meeting hazardous waste, PCB waste and low-level waste (LLW) landfill siting requirements. Through a preliminary evaluation of all relevant decision criteria, the Agencies have determined the Study Area for siting the ICDF to be the CPP-67 Percolation Ponds and adjacent areas to the west. However, the specific ICDF cell locations will be determined through the completion of a comprehensive geotechnical evaluation of the entire Study Area, which shall be reviewed and approved by the Agencies. Siting criteria for the location of the ICDF included:
  - Outside the 100-year flood plain
  - Outside of wetland areas
  - Not in active seismic zones
  - Not in high surface erosion areas
  - Not in an area of high historic groundwater table.

- The construction and operation of an ICDF supporting complex including a facility waste storage, sizing staging, and treatment (SSST) facility in accordance with the substantive requirements of IDAPA 16.01.05.008 (40 CFR 264 Subparts I, J, and DD). Operations at the facility will include chemical/physical treatment to prepare ICDF wastes to meet applicable Waste Acceptance Criteria and RCRA land disposal restrictions.

- One or more remedial waste staging and storage areas will be utilized to stage and handle remediation waste. The storage area be operated in accordance with the substantive requirements of IDAPA 16.01.05.006.01 and 16.01.05.006.02 (40 CFR 262.34[a][1]).

- Monitoring well construction and sampling wastes generated prior to construction of the ICDF and SSST facility (i.e., purge water and drill cuttings) may be managed and treated using remediation waste staging piles and temporary treatment units in accordance with the substantive requirements of IDAPA 16.01.05.008 (40 CFR 264.553 and 40 CFR 264.554).

- Treatment will be accomplished using mobile tankage and physical/chemical treatment and will comply with the substantive requirements of IDAPA 16.01.05.008 (40 CFR 264 Subpart J, BB, and CC).

- An evaporation pond will be constructed and designated as a corrective action management unit (CAMU) in accordance with the substantive requirements of IDAPA 16.01.05.008 (40 CFR 264.552 and 40 CFR 264 Subpart K and CC) for purpose of managing ICDF leachate and other aqueous wastes generated as a result of operating the ICDF complex.

- Operate, close, and post-close the ICDF Complex in accordance with the substantive requirements of IDAPA 16.01.05.008 (40 CFR 264 Subparts G, F, and N) Maintain site access restrictions and institutional controls throughout the post-closure period.

Closure requirements will include:

- Access restrictions to prevent intrusions into the closed area, including the creation of a buffer zone surrounding the capped ICDF and supporting structures

- Access controls, monitoring and maintenance will remain in place for as long as the contents of the landfill remain a threat to human health or the environment if uncontrolled.

The best location to site the ICDF was evaluated using the analytic hierarchy process (AHP) decision analysis technique. Figure 11-3 shows the AHP decision evaluation criteria used in the preliminary ICDF siting evaluation. Based on this evaluation, it was determined that locating the facility within the AOC was the most cost effective and ARAR-compliant location for siting the ICDF. The Agencies have determined the Study Area for siting the ICDF to be the CPP-67 Percolation Ponds and adjacent areas to the west as depicted in Figure 11-4 based on the preliminary geotechnical information. However, the specific ICDF cell locations will be determined through the completion of a comprehensive geotechnical evaluation of the entire Study Area, which shall be reviewed and approved by the Agencies.

The preliminary siting evaluation criteria included:

- Public health and safety (e.g., effects on surface water, effects on groundwater, floodplain)

- Natural environment (e.g., effects on the habitat of rare, threatened or endangered species)

- Technical (e.g., depth to bedrock, underlying soil properties, perched aquifer protection)

- Social Economic environment (e.g., effects on future land use)

- Cultural Environment (e.g., effects on archaeological or heritage sites)

- Community acceptance (e.g., public comments, Citizens Advisory Board comments)

- Cost.

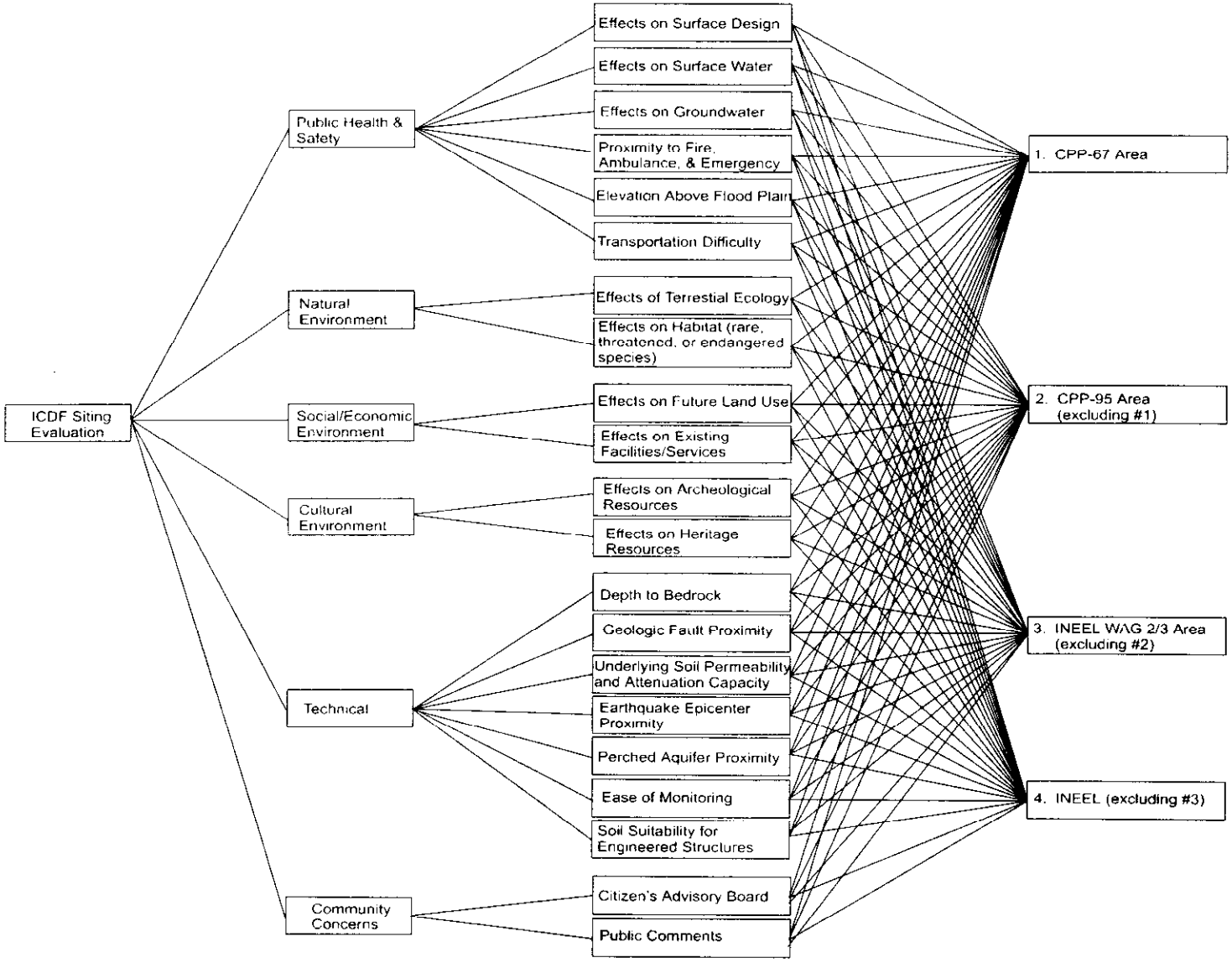

Figure 11-3. Summary of the AHP decision evaluation criteria for the preliminary ICDF siting evaluation.